

WHAT IS CLAIMED IS:

1. A method for attaching a circuit element to a substrate, comprising:

applying a conductive bonding material to a conductive portion of at least one of the circuit element and the substrate;

positioning the circuit element in a desired location on the substrate;

heating the conductive bonding material to promote one or more conductive bonds; and

applying a non-conductive bonding material around an area where the circuit element overlies the substrate to form a non-conductive bond between the circuit element and the substrate.
2. The method of claim 1 wherein the conductive bonding material comprises a conductive epoxy resin.
3. The method of claim 1 wherein the non-conductive bonding material comprises a liquid underfill encapsulant material.
4. The method of claim 1 wherein the circuit element is one selected from the group consisting of a capacitor, a resistor, a diode, a transistor and an inductor.
5. The method of claim 1 wherein heating the conductive bonding material comprises placing the substrate on a hot plate and heating the substrate to a temperature in a range of approximately 65°C to 85°.
6. The method of claim 1 wherein the substrate comprises a laminate substrate and wherein the conductive bonding material comprises a conductive epoxy resin.

7. The method of claim 1 wherein the substrate comprises a laminate substrate and wherein the conductive bonding material comprises a conductive solder.

8. The method of claim 1 wherein the substrate comprises a laminate substrate and wherein the non-conductive bonding material comprises a flip chip underfill material.

9. A method of attaching an electrical device to a circuit board, comprising:
applying a conductive adhesive to electrical conductors of at least one of the electrical device and the circuit board;

positioning the electrical device relative to the circuit board so that corresponding electrical conductors are aligned and in contact;

seating the electrical device in the conductive adhesive;

gel curing the conductive adhesive at an elevated temperature;

applying an amount of liquid encapsulant material around edges of the electrical device near the circuit board; and

full curing the conductive adhesive and the encapsulant material.

10. The method of claim 9 wherein the electrical device is one selected from the group consisting of a resistor, a capacitor, a diode, a transistor and an inductor.

11. The method of claim 9 wherein the liquid encapsulant material comprises a flip chip underfill material.

12. The method of claim 9 wherein the conductive adhesive comprises a silver epoxy resin.

13. The method of claim 9 wherein the conductive adhesive comprises a gold epoxy resin.

14. The method of claim 9 wherein the circuit board comprises a laminate substrate.

15. An electrical circuit assembly comprising:

a substrate;

at least one circuit element bonded to the substrate via a conductive bond and a non-conductive bond, wherein the conductive bond comprises a solidified conductive epoxy resin and wherein the non-conductive bond comprises an underfill encapsulant material.

16. The electrical circuit assembly of claim 15 wherein the substrate comprises a laminate substrate and wherein the at least one circuit element comprises an electrical circuit device other than an integrated circuit.

17. The electrical circuit assembly of claim 15 wherein the at least one circuit element comprises a device selected from the group consisting of a capacitor, a resistor, an inductor, a transistor and a diode.